

Appl. No.: 10/716,651
Amdt. dated 12/15/2005
Reply to Office action of 09/09/2005

Amendments to the Claims:

1. (currently amended) A ~~rotor~~ turbine wheel connected to a shaft and configured to be rotated with the flow of gas through a housing to thereby rotate the shaft, the ~~rotor~~ turbine wheel comprising:

a body portion configured to rotate about an axis; and

a plurality of blades extending radially outward from the body portion of the turbine wheel, each blade defining a first edge and a second edge, the first edge extending generally radially and the second edge extending generally axially,

wherein the second edge of each blade is ~~one of a leading and trailing edge of the blade~~ and defines a nonlinear, concavely curved profile in radial-axial projection.

2. (currently amended) A ~~rotor~~ turbine wheel according to Claim 1 wherein the ~~rotor~~ turbine wheel is configured to be rotated proximate to a plurality of vanes in the housing.

3. (cancelled)

4. (cancelled)

5. (cancelled)

6. (currently amended) A ~~rotor~~ turbine wheel according to Claim 1 wherein the first edge defines a nonlinear profile that extends axially and radially in radial-axial projection.

7. (currently amended) A ~~rotor~~ turbine wheel according to Claim 1 wherein all of the blades are substantially similar.

8. (currently amended) A rotary apparatus configured to circulate a gas, the apparatus comprising:

Appl. No.: 10/716,651
Amdt. dated 12/15/2005
Reply to Office action of 09/09/2005

a housing defining an inlet and an outlet;

a rotor disposed in the housing and configured to rotate with a flow of gas through the housing, the rotor having a body portion configured to rotate about an axis and a plurality of blades extending radially outward from the body portion, each blade defining a first edge and a second edge, the first edge extending generally radially and the second edge extending generally axially; and

a plurality of vanes disposed at circumferentially incremental locations in the housing radially outward from the second edge of the blades such that the blades are subjected to cyclically varying aerodynamic forces as the blades pass in proximity to the vanes during rotation of the rotor, thereby cyclically stressing the blades, the vanes being adjustable to thereby control the flow of the gas through the housing,

wherein the second edge of each blade is one of a leading and trailing edge of the blade and defines a nonlinear profile in radial-axial projection.

9. (cancelled)

10. (cancelled)

11. (currently amended) An apparatus according to Claim 8 wherein the housing defines the inlet radially outward from the rotor, the rotor being a turbine wheel connected to a shaft and configured to be rotated by the circulation of the gas through the housing and thereby rotate the shaft.

12. (original) An apparatus according to Claim 8 wherein the housing defines a diffuser radially outward from the rotor, the rotor being a compressor wheel connected to a shaft and configured to be rotated by the shaft to thereby compress the gas in the housing and deliver the gas through the outlet to the diffuser.

Appl. No.: 10/716,651
Amdt. dated 12/15/2005
Reply to Office action of 09/09/2005

13. (original) An apparatus according to Claim 8 wherein the second edge of each blade defines a concave profile in radial-axial projection.

14. (currently amended) An apparatus according to Claim 8 wherein the first edge of each blade defines a ~~nonlinear~~ profile that extends axially and radially in radial-axial projection.

15. (original) An apparatus according to Claim 8 wherein all of the blades are substantially similar.

Claims 16-21 (cancelled).

22. (new) A turbine wheel according to Claim 1 wherein the second edge of each blade defines a smooth and continuous concave profile in radial-axial projection.

23. (new) A turbine wheel according to Claim 1 wherein the second edge of each blade defines a concave profile in radial-axial projection, the profile extending smoothly and continuously from a first end to a second end in a generally axial direction, the first and second ends extending radially to a greater extent than a midpoint of the profile between the first and second ends.

24. (new) A turbine wheel according to Claim 1 wherein the second edge of each blade defines in radial-axial projection two axial portions with a concave portion therebetween, the concave portion having a curvature that defines a center of curvature located radially outward of the second edge.

25. (new) An apparatus according to Claim 8 wherein the second edge of each blade defines a smooth and continuous concave profile in radial-axial projection.

Appl. No.: 10/716,651
Amdt. dated 12/15/2005
Reply to Office action of 09/09/2005

26. (new) An apparatus according to Claim 8 wherein the second edge of each blade defines a concave profile in radial-axial projection, the profile extending smoothly and continuously from a first end to a second end in a generally axial direction, the first and second ends extending radially to a greater extent than a midpoint of the profile between the first and second ends.

27. (new) An apparatus according to Claim 8 wherein the second edge of each blade defines in radial-axial projection two axial portions with a concave portion therebetween, the concave portion having a curvature that defines a center of curvature located radially outward of the second edge.